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10/645,836	08/22/2003	Philip J. Lingle	3691-583	8131

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EXAMINER	
BLACKWELL RUDASIL, GWENDOLYN A	
ART UNIT	**PAPER NUMBER**
1775	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/645,836	LINGLE ET AL.	
	Examiner	Art Unit	
	Gwendolyn Blackwell	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-44 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-44 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 22 August 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 9/03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. US Patent Application no. 60/217,101 listed on the Information Disclosure Statement labeled August 22, 2003 has been noted and considered. However, because the document is not published, it will not be listed on the front of any patent granted in this presently pending application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5, 9-14, 22-27, 31-33, 38-42, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent no. 6,060,178, Krisko.

Regarding claim 1

Applicant claims the following layer structure, (claim 1):

glass/silicon nitride/zinc oxide/Ag/dielectric (metal oxide)/Ag/dielectric

wherein the glass, silicon nitride, zinc oxide and first Ag layers are all located on and contacting each other without any other layers located between the aforementioned layers. Krisko disclose a coated article comprised of a glass substrate with a multilayer coating formed thereon which is able to withstand the high temperatures associated with heat

treatment, (column 1, lines 10-15). Example 2 demonstrates the following layer structure, (column 8, lines 35-59), meeting the requirements of claim 1:

Glass	
Si_3N_4	86 Å
ZnO	50 Å
Ag	77 Å
Nb	15 Å
ZnO	90 Å
Si_3N_4	470 Å
ZnO	50 Å
Ag	145 Å
Nb	15 Å
ZnO	90 Å
Si_3N_4	245 Å

Regarding claims 2-5, 10-14 and 22

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01.* Because Example 2 of Krisko (see above) exemplifies Applicant's claimed multilayer coating structure, the claimed physical properties relating to the visible light transmission, sheet resistance, and ΔE^* are inherently present in the prior art. Absent an objective showing to the contrary, the addition of the claimed physical properties to the claim language fails to provide patentable distinction over the prior art of record, meeting the requirements of claims 2-5 and 10-14.

Because the layer structure of Example 2 exemplifies the layer structure of presently pending claim 1 as demonstrated above, it would be expected that when the layer structure of Example 2 when heated according to the specifications of claim 22 that it would exhibit the same properties. Absent an objective showing to the contrary, the addition of the claimed physical properties to claim 22 fails to provide a patentable distinction over the prior art of record, meeting the limitations of claim 22.

Regarding claim 9 and 31

The silicon nitride layer formed next to the glass substrate can have a thickness ranging from 50-300 Å, (column 7, lines 26-29), meeting the requirements of claims 9 and 31.

Regarding claim 23

Applicant claims the following layer structure, (claim 23):

glass/silicon nitride/zinc oxide/Ag/dielectric

wherein the silicon nitride is located directly on and contacting the glass substrate and the Ag layer is located directly on and contacting the zinc oxide layer. Krisko disclose a coated article comprised of a glass substrate with a multilayer coating formed thereon which is able to withstand the high temperatures associated with heat treatment, (column 1, lines 10-15). Example 2 of Krisko demonstrates the following layer structure, (column 8, lines 35-59), meeting the requirements of claim 23:

Glass	
Si_3N_4	86 Å
ZnO	50 Å
Ag	77 Å
Nb	15 Å
ZnO	90 Å
Si_3N_4	470 Å
ZnO	50 Å
Ag	145 Å
Nb	15 Å
ZnO	90 Å
Si_3N_4	245 Å

Regarding claims 24-27, 32-33, and 38

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01.* Because Example 2 of Krisko (see above) exemplifies Applicant's claimed multilayer coating structure, the claimed physical properties relating to the visible light transmission, sheet resistance, and ΔE^* are inherently present in the prior art. Absent an objective showing to the contrary, the addition of the claimed physical properties to the claim language fails to provide patentable distinction over the prior art of record, meeting the requirements of claims 24-27 and 32-33.

Because the layer structure of Example 2 exemplifies the layer structure of presently pending claim 23 as demonstrated above, it would be expected that when the layer structure of Example 2 when heated according to the specifications of claim 22 that it would exhibit the same properties. Absent an objective showing to the contrary, the addition of the claimed physical properties to claim 38 fails to provide a patentable distinction over the prior art of record, meeting the limitations of claim 38.

Regarding claims 39-42

Applicant claims the following layer structure, (claim 39):

glass/silicon nitride/metal oxide/Ag/dielectric

wherein the silicon nitride is located directly on and contacting the glass substrate and the Ag layer is located directly on and contacting the metal oxide layer. Krisko disclose a coated article comprised of a glass substrate with a multilayer coating formed thereon which is able to withstand the high temperatures associated with heat treatment, (column 1, lines 10-15). Example 2 demonstrates the following layer, (column 8, lines 35-59):

Glass	
Si_3N_4	86 Å
ZnO	50 Å
Ag	77 Å
Nb	15 Å
ZnO	90 Å
Si_3N_4	470 Å
ZnO	50 Å
Ag	145 Å
Nb	15 Å
ZnO	90 Å
Si_3N_4	245 Å

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01*. Because the layer structure of Example 2 exemplifies the layer structure of presently pending claim 39 as demonstrated above, it would be expected that when the layer structure of Example 2 when heated according to the specifications of claim 39 that it would exhibit the same physical properties. Absent an objective showing to the contrary, the addition of the claimed physical properties to claim 39 fails to provide a patentable distinction over the prior art of record, meeting the limitations of claims 39-42.

Regarding claim 44

The coated substrate, which is be held synonymous with a monolithic glass substrate, can be formed of a glass substrate with a multilayer coating formed thereon that is used as a window of a self-cleaning oven, (column 3, lines 39-44), meeting the requirements of claim 44.

4. Claims 1-5, 8, 10-14, 16-17, 19-27, 30, 32-33, 35-37, 39-42, and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent no. 6,472,072, Ebisawa et al.

Regarding claims 1

Applicant claims the following layer structure, (claim 1):

glass/silicon nitride/zinc oxide/Ag/dielectric (metal oxide)/Ag/dielectric

wherein the glass, silicon nitride, zinc oxide and first Ag layers are all located on and contacting each other without any other layers located between the aforementioned layers. Ebisawa et al disclose a glazing panel having the following structure, (Example 1, column 6, lines 45-64), meeting the requirements of claim 1:

	Reference number	Geometrical thickness	Atomic ratios
Glass substrate	10	2 mm	
Base dielectric comprising:	11		
AlSixNy	12	40 Å	Si/Al = 0.5
ZnAlOx	13	260 Å	Al/Zn = 0.1
ZnAlOy underlying barrier	14	10 Å	Al/Zn = 0.1
Ag	15	100 Å	
ZnAlOy overlying barrier	16	12 Å	Al/Zn = 0.1
Central dielectric comprising			
ZnAlOx	17	770 Å	Al/Zn = 0.1
ZnAlOy underlying barrier	18	7 Å	Al/Zn = 0.1
Ag	19	100 Å	
ZnAlOy overlying barrier	20	17 Å	Al/Zn = 0.1
Top dielectric comprising:			
ZnAlOx	22	385 Å	Al/Zn = 0.1
AlSixNy	23	75 Å	Si/Al = 0.3

Regarding claims 2-5, 10-14 and 22

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01.* Because Example 1 of Ebisawa et al (see above) exemplifies Applicant's claimed multilayer coating structure, the claimed physical properties relating to the visible light transmission, sheet resistance, and ΔE^* are inherently present in the prior art. Absent an objective showing to the contrary, the addition of the claimed physical properties to the claim language fails to provide patentable distinction over the prior art of record, meeting the requirements of claims 2-5 and 10-14.

Because the layer structure of Example 1 exemplifies the layer structure of presently pending claim 1 as demonstrated above, it would be expected that when the layer structure of Example 1 when heated according to the specifications of claim 22 that it would exhibit the

same properties. Absent an objective showing to the contrary, the addition of the claimed physical properties to claim 22 fails to provide a patentable distinction over the prior art of record, meeting the limitations of claim 22.

Regarding claims 8, 16, 30, and 44

The glazing panel can be used in a laminated vehicle windscreen wherein after heat treatment the first layer comprised of silicon nitride which is next to the glass substrate is partially oxidized resulting in some silicon oxynitride being present in the layer, meeting the requirements of claim 44.

Because Example 1 after heat treatment, (columns 7-8, lines 58-20), of Ebisawa et al exemplifies Applicant's claimed multilayer coating structure, the claimed physical property relating to the index of refraction is inherently present in the prior art. Absent an objective showing to the contrary, the addition of the claimed physical property to the claim language fails to provide patentable distinction over the prior art of record, meeting the requirements of claims 8, 16, and 30.

Regarding claims 17 and 35

According to Example 1 set forth above the zinc oxide and silicon nitride layer further includes aluminum, meeting the requirements of claims 17 and 35.

Regarding claims 19-21 and 36-37

According to Example 1 the laminated vehicle windscreen has the following properties:

Property	Prior to heat treatment see Note 1 below	Following heat treatment see Note 2 below
TL(Illuminant A)	65%	76%
TE (System Moon 2)	40%	43%
haze	0.1	0.2
a*	-15 (coated side)	-2 (external)
b*	+1 (coated side)	-10 (external)
RE (System Moon 2)	29% (coated side)	31% (external)

Note 1: Measure for monolithic glazing panel with coating prior to heat treatment
Note 2: Measured following heat treatment at 650° C. for 10 minutes with bending and tempering, and lamination with clear 2 mm glass sheet and 0.76 mm clear pvb

wherein the total solar value as exemplified by Applicant is being held synonymous with Ebisawa et al's TE value, meeting the requirements of claims 19-21 and 36-37.

Regarding claim 23

Applicant claims the following layer structure, (claim 23):

glass/silicon nitride/zinc oxide/Ag/dielectric

wherein the silicon nitride is located directly on and contacting the glass substrate and the Ag layer is located directly on and contacting the zinc oxide layer. Ebisawa et al disclose a glazing panel having the following structure, (Example 1, column 6, lines 45-64), meeting the requirements of claim 23:

	Reference number	Geometrical thickness	Atomic ratios
Glass substrate	10	2 mm	
Base dielectric comprising:	11		
AlSixNy	12	40 Å	Si/Al = 0.5
ZnAlOx	13	250 Å	Al/Zn = 0.1
ZnAlOy underlying barrier	14	10 Å	Al/Zn = 0.1
Ag	15	100 Å	
ZnAlOy overlying barrier	16	12 Å	Al/Zn = 0.1
Central dielectric comprising			
ZnAlOx	17	770 Å	Al/Zn = 0.1
ZnAlOy underlying barrier	18	7 Å	Al/Zn = 0.1
Ag	19	100 Å	
ZnAlOy overlying barrier	20	17 Å	Al/Zn = 0.1
Top dielectric comprising:			
ZnAlOx	22	185 Å	Al/Zn = 0.1
AlSixNy	23	75 Å	Si/Al = 0.3

Regarding claims 24-27, 32-33, and 38

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01*. Because Example 1 of Ebisawa et al (see above) exemplifies Applicant's claimed multilayer coating structure, the claimed physical properties relating to the visible light transmission, sheet resistance, and ΔE^* are inherently present in the prior art. Absent an objective showing to the contrary, the addition of the claimed physical properties to the claim language fails to

provide patentable distinction over the prior art of record, meeting the requirements of claims 24-27 and 32-33.

Because the layer structure of Example 1 exemplifies the layer structure of presently pending claim 23 as demonstrated above, it would be expected that when the layer structure of Example 1 when heated according to the specifications of claim 22 that it would exhibit the same properties. Absent an objective showing to the contrary, the addition of the claimed physical properties to claim 38 fails to provide a patentable distinction over the prior art of record, meeting the limitations of claim 38.

Regarding claims 39-42

Applicant claims the following layer structure, (claim 39):

glass/silicon nitride/metal oxide/Ag/dielectric

wherein the silicon nitride is located directly on and contacting the glass substrate and the Ag layer is located directly on and contacting the metal oxide layer. Ebisawa et al disclose a glazing panel having the following structure, (Example 1, column 6, lines 45-64), meeting the requirements of claim 39:

	Reference number	Geometrical thickness	Atomic ratios
Glass substrate	10	2 mm	
Base dielectric comprising:	11		
AlSixNy	12	40 Å	Si/Al = 0.5
ZnAlOx	13	260 Å	Al/Zn = 0.1
ZnAlOy underlying barrier	14	10 Å	Al/Zn = 0.1
Ag	15	100 Å	
ZnAlOy overlying barrier	16	12 Å	Al/Zn = 0.1
Central dielectric comprising			
ZnAlOx	17	770 Å	Al/Zn = 0.1
ZnAlOy underlying barrier	18	7 Å	Al/Zn = 0.1
Ag	19	100 Å	
ZnAlOy overlying barrier	20	17 Å	Al/Zn = 0.1
Top dielectric comprising:			
ZnAlOx	22	185 Å	Al/Zn = 0.1
AlSixNy	23	75 Å	Si/Al = 0.3

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01*. Because the layer structure of Example 1 exemplifies the layer structure of presently pending claim 39 as demonstrated above, it would be expected that when the layer structure of Example 1 when heated according to the specifications of claim 39 that it would exhibit the same physical properties. Absent an objective showing to the contrary, the addition of the claimed physical properties to claim 39 fails to provide a patentable distinction over the prior art of record, meeting the limitations of claims 39-42.

Claim Rejections - 35 USC § 102/103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> *(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-5, 10-14, 17, 22-27, 31-33, 35, 38-42 and 44 are under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over United States Patent no. 6,355,334, Rondeau et al.

Regarding claim 1

Applicant claims the following layer structure, (claim 1):

glass/silicon nitride/zinc oxide/Ag/dielectric (metal oxide)/Ag/dielectric

wherein the glass, silicon nitride, zinc oxide and first Ag layers are all located on and contacting each other without any other layers located between the aforementioned layers. Rondeau et al disclose a transparent substrate provide with a thin film stack wherein the coated substrate can undergo heat treatments, (column 6, lines 44-47). The coating can have the following structure, (column 3, lines 55-60), meeting the requirements of claim 1:

Glass/SnO_2 or Si_3N_4:Al or AlN/ZnO or ZnO:Al/Ag/Ti or NiCr/ZnO or SnO_2/SiO_2 or Al_2O_3 or SiO_2:Al_2O_3/SnO_2 or ZnO or $SnZnO_x$ or AlN or Si_3N_4:Al or (AlN/Si_3N_4:Al) or (Si_3N_4:Al/AlN) or (SnO_2/$SnZnO_x$)

In the alternative, while not teaching a specific example with silicon nitride as the first dielectric layer it would have been within the skill of one in the art to select silicon nitride as it is listed as an equivalent to tin oxide and aluminum nitride.

Regarding claims 2-5, 10-14, and 22

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01*. Because Rondeau et al (see above) exemplifies Applicant's claimed multilayer coating structure, the claimed physical properties relating to the visible light transmission, sheet resistance, and ΔE^* are inherently present in the prior art. Absent an objective showing to the contrary, the addition of the claimed physical properties to the claim language fails to provide patentable distinction over the prior art of record, meeting the requirements of claims 2-5 and 10-14.

Because the layer structure of Rondeau et al exemplifies the layer structure of presently pending claim 1 as demonstrated above, it would be expected that when the layer structure is heated according to the specifications of claim 22 that it would exhibit the same properties as claim 22. Absent an objective showing to the contrary, the addition of the

claimed physical properties to claim 22 fails to provide a patentable distinction over the prior art of record, meeting the limitations of claim 22.

Regarding claims 17 and 35

Materials such as aluminum can be used to dope the zinc oxide and silicon nitride layers, (column 3, lines 10-34), meeting the requirements of claims 17 and 35.

Regarding claim 23

Applicant claims the following layer structure, (claim 23):

glass/silicon nitride/zinc oxide/Ag/dielectric

wherein the silicon nitride is located directly on and contacting the glass substrate and the Ag layer is located directly on and contacting the zinc oxide layer. Rondeau et al disclose a transparent substrate provide with a thin film stack wherein the coated substrate can undergo heat treatments, (column 6, lines 44-47). The coating can have the following structure, (column 3, lines 55-60), meeting the requirements of claim 23:

Glass/SnO_2 or Si_3N_4:Al or AlN/ZnO or ZnO:Al/Ag/Ti or NiCr/ZnO or SnO_2/SiO_2 or Al_2O_3 or SiO_2:Al_2O_3/SnO_2 or ZnO or $SnZnO_x$ or AlN or Si_3N_4:Al or (AlN/Si_3N_4:Al) or (Si_3N_4:Al/AlN) or (SnO_2/$SnZnO_x$)

In the alternative, while not teaching a specific example with silicon nitride as the first dielectric layer it would have been within the skill of one in the art to select silicon nitride as it is listed as an equivalent to tin oxide and aluminum nitride.

Regarding claims 24-27, 31-33, and 38

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01*. Because Rondeau et al (see above) exemplifies Applicant's claimed multilayer coating structure, the claimed physical properties relating to the visible light transmission, sheet resistance, and ΔE^* are inherently present in the prior art. Absent an objective showing to the contrary, the

addition of the claimed physical properties to the claim language fails to provide patentable distinction over the prior art of record, meeting the requirements of claims 24-27 and 32-33.

Because the layer structure of Rondeau et al exemplifies the layer structure of presently pending claim 23 as demonstrated above, it would be expected that when the layer structure is heated according to the specifications of claim 38 that it would exhibit the same properties as claim 38. Absent an objective showing to the contrary, the addition of the claimed physical properties to claim 38 fails to provide a patentable distinction over the prior art of record, meeting the limitations of claim 38.

Regarding claims 39-42

Applicant claims the following layer structure, (claim 39):

glass/silicon nitride/metal oxide/Ag/dielectric

wherein the silicon nitride is located directly on and contacting the glass substrate and the Ag layer is located directly on and contacting the metal oxide layer. Rondeau et al disclose a transparent substrate provide with a thin film stack wherein the coated substrate can undergo heat treatments, (column 6, lines 44-47). The coating can have the following structure, (column 3, lines 55-60):

Glass/SnO_2 or Si_3N_4:Al or AlN/ZnO or ZnO:Al/Ag/Ti or NiCr/ZnO or SnO_2/Si_3N_4 or Al_2O_3 or SiO_2:Al_2O_3/SnO_2 or ZnO or $SnZnO_x$ or AlN or Si_3N_4:Al or (AlN/Si_3N_4:Al) or (Si_3N_4:Al/AlN) or (SnO_2/$SnZnO_x$)

When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01.* Because the layer structure of Rondeau et al exemplifies the layer structure of presently pending claim 39 as demonstrated above, it would be expected that when the layer structure is heated according to the specifications of claim 39 that it would exhibit the same properties as claim 39. Absent an objective showing to the contrary, the addition of the claimed physical

properties to claim 39 fails to provide a patentable distinction over the prior art of record, meeting the limitations of claims 39-42.

In the alternative, while not teaching a specific example with silicon nitride as the first dielectric layer it would have been within the skill of one in the art to select silicon nitride as it is listed as an equivalent to tin oxide and aluminum nitride.

Regarding claim 44

The coated substrate, which is be held synonymous with a monolithic glass substrate, can be formed of a glass substrate with a multilayer coating formed thereon that is used as a window glazing, (column 4, lines 1-4), meeting the requirements of claim 44.

Claim Rejections - 35 USC § 103

8. Claims 1, 6-7, 15-16, 18, 23, 28-29, 34, 39, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Application Publication no. 2003/0150711, Laird in view of United States Patent Application Publication no.2002/0102352, Hartig et al.

Regarding claims 1, 23, and 39

Applicant claims the following layer structure, (claim 1):

glass/silicon nitride/zinc oxide/Ag/dielectric (metal oxide)/Ag/dielectric

wherein the glass, silicon nitride, zinc oxide and first Ag layers are all located on and contacting each other without any other layers located between the aforementioned layers.

Applicant claims the following layer structure, (claim 23):

glass/silicon nitride/zinc oxide/Ag/dielectric

wherein the silicon nitride is located directly on and contacting the glass substrate and the Ag layer is located directly on and contacting the zinc oxide layer.

Applicant claims the following layer structure, (claim 39):

glass/silicon nitride/metal oxide/Ag/dielectric

wherein the silicon nitride is located directly on and contacting the glass substrate and the Ag layer is located directly on and contacting the metal oxide layer. The recitation of the coating have certain physical properties are considered as an optional feature as it is not recited as a positive limitation.

Laird discloses a coated article with high visible transmission and low emissivity wherein the layer structure of the coated article is as follows:

TABLE 1

(Example Materials/Thicknesses: FIG. 1 Embodiment)

Layer	Preferred Range (Å)	More Preferred (Å)	Example (Å)
TiO_2 (layer 3)	0–700 Å	100–400 Å	200 Å
ZnO_x (layer 7)	25–200 Å	40–150 Å	90 Å
Ag (layer 9)	50–250 Å	80–200 Å	130 Å
$NiCrO_x$ (layer 11)	5–100 Å	15–60 Å	30 Å
SnO_2 (layer 13)	0–1,000 Å	500–900 Å	680 Å
ZnO_x (layer 17)	25–200 Å	40–150 Å	90 Å
Ag (layer 19)	50–250 Å	80–220 Å	168 Å
$NiCrO_x$ (layer 21)	5–100 Å	15–60 Å	30 Å
SnO_2 (layer 23)	0–500 Å	70–200 Å	125 Å
Si_3N_4 (layer 25)	0–500 Å	120–320 Å	220 Å

Layer 3, in the example set forth above is listed as TiO_2, is the first dielectric layer that can also be silicon nitride. Laird does not specifically disclose examples having silicon nitride in the place of titanium dioxide as the first dielectric layer.

Although no specific example has been listed using silicon nitride as the first dielectric layer, silicon nitride has been listed as an equivalent material for titanium dioxide, (page 2, section 0038). As such, it would have been within the skill of one in the art at the time of invention to substitute the silicon nitride for the titanium dioxide as the first dielectric layer.

Regarding claims 6-7, 15, 28-29, 34, and 43

According to Laird, the first dielectric layer comprised of silicon nitride contains the nitride in a stoichiometric or non-stoichiometric state having the formula Si_xN_y wherein x/y is in the range of 0.75-1.5. The Si-rich layer can have a refractive index ranging from 2.0-2.7, (page 2, section 0038).

Regarding claims 16

Laird discloses that the heat treatable, (page 1, section 0001), coated article can be a laminated windshield as demonstrated in Figure 2 and page 1, section 0036.

Regarding claim 18

Laird discloses the structural limitation of claim 1 above. Laird does not specifically disclose that a layer of silicon nitride should be placed between the ZnO and SnO_2 layers above the first Ag layer but below the second Ag layer.

Hartig et al disclose a haze resistant film stack wherein the intermediate layers formed between the first and second Ag layers has silicon nitride next to zinc oxide, (page 4, sections 0026-0028).

Laird and Hartig et al disclose inventions related to coated articles that can be used as vehicle and building window glazings. As such, it would be within the skill of one in the art at the time of invention to modify the layer structure of Laird by inserting a silicon nitride layer between the ZnO and SnO_2 located between the first and second Ag layers in order to prevent propagation of ZnO grain boundaries outside of the thickness of the layer in which ZnO is applied as well as significantly reduce the haze which may occur from high temperature treatment, (Hartig et al, page 4, section 0028).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn Blackwell whose telephone number is (571) 272-1533. The examiner can normally be reached on Monday - Thursday, 5:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Gwendolyn Blackwell
Examiner
Art Unit 1775

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